High resolution synchrotron-tomography on human tooth tissue — H. G. Gräber\textsuperscript{1}, A. Rack\textsuperscript{2}, A. Haibel\textsuperscript{2}, I. Manke\textsuperscript{3}, H. Riesemeier\textsuperscript{4}, G. Weidemann\textsuperscript{4}, J. Goebbels\textsuperscript{4}, and J. Banhart\textsuperscript{2,3} — \textsuperscript{1}Medical Faculty, RWTH Aachen \textsuperscript{2}Hahn-Meitner-Institut Berlin, Abteilung Strukturforschung \textsuperscript{3}Institut für Metallphysik, TU Berlin — \textsuperscript{4}Bundesanstalt für Materialforschung und -prüfung

Caries and periodontitis are the most frequent infectious diseases at all. Both diseases lead to an irreversible loss of mineralized tissues (bone and tooth). The aim of current and future research projects is to develop regenerative strategies by means of tissue engineering. We examine samples for different stages of the disease with synchrotron-tomography using a high spatial resolution of 1.5 \(\mu m\) pixel size. The demineralized tissue can be detected in the 3d images due to its lower density. By quantitative analysis of the data one obtains information about the disease growing’s time-dependence. A comparison of non-treated infected teeth with treated ones (e.g. fluoridation) delivers information about the quality of different regeneration approaches.

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